

AMENDMENTS TO THE SPECIFICATION:

Please amend the specification as follows:

Please amend paragraph [026] as follow:

Fig. 2a is a spectral diagram exemplarily illustrating the scale factor based bit shifting (SFBBS) according to the present invention~~[[;]],~~ and Figs. 2b and 2c are respectively a table and a graph illustrating the relationship between a plurality of scale factors and a masking curve of a single MPEG-4 AAC coded frame.

Please amend paragraph [036] as follow:

Fig. 2a is a spectral diagram exemplarily illustrating the scale factor based bit shifting (SFBBS) according to the present invention. Scale factors correspond to the noise tolerance in each of the sub-bands i , $i+1$, $i+2$... in their respective spectral energy. The sub-bands with less error tolerance are generally associated with larger scale factors. Small error tolerance means that the human ear will be more sensitive to the frequency range defined by the sub-band corresponding to that small error tolerance. That is, if the error tolerance is small in a sub-band, the quantized data in that sub-band are more significant as they must be more sensitive to the human ear. If the scale factor in a particular sub-band exceeds a threshold value, the quantized data in that sub-band are shifted by the respective scale factor, i.e., the bits in that sub-band are shifted upwards by the same number of significance levels as the value of the sub-band's scale factor.

Please delete paragraph [037] of the Specification and the table and graph on page 12 immediately above paragraph [037].

Please amend paragraph [038] as follow:

~~The above Tables A and B~~ Fig. 2b and Fig. 2c exemplarily illustrate the relationship between a plurality of scale factors and the masking curve of a single MPEG-4 AAC coded frame in tabular and graphical forms, respectively. At the sub-bands where the masking level is smaller, the values of their respective scale factors are higher. The present invention advantageously exploits this relationship in scale factor-based bit shifting (SFBBS) in optimizing the decoded audio signal quality at low bit rates.

Please amend paragraph [044] as follow:

The methodology according to the invention can be described and iteratively expressed in an inner loop and an outer loop. An exemplary pseudo code expression (1) for the inner loop is shown ~~in Table C as follows~~ below:

```
if (counted_bits > available_bits) then
    common_scalefac = common_scalefac + quantizer_change
else
    common_scalefac = common_scalefac - quantizer_change
end if
```

(1)

Please amend paragraph [045] as follow:

According to ~~Table C~~ expression (1), a common scale factor is determined by comparing the number of counted bits and available bits. If the number of counted bits

is greater than the available bits, the common scale factor is increased by a positive quantization change. Conversely, if the number of counted bits is not greater than the available bits, the common scale factor is decreased by the quantization change.

Please amend paragraph [046] as follow:

An outer loop is used to determine the respective scale factor for each of the sub-bands. An exemplary pseudo code expression (2) for the outer loop is shown in ~~Table D~~ as follows below:

```
do for each scalefactor band sb:  
    error_energy(sb)=0  
    do from lower index to upper index i of scalefactor band  
        error_energy(sb) = error_energy(sb) + (abs(mdct_line(i))  
        - (x_quant(i)^(4/3) * 2^(-1/4*(scalefactor(sb)-common)scalefac)))^2  
    end do  
end do  
  
do for each scale factor band sb (2)  
    if(error_energy(sb) > xmin(sb)) then  
        scalefactor(sb) = scalefactor(sb) + 1  
    end if  
end do
```

Please amend paragraph [047] as follow:

According to ~~Table D~~ expression (2), the error energy for each of the sub-bands is determined by taking the value of the original spectral energy level, e.g., through modified discrete cosine transform or MDCT, and adjusting it with de-quantization of the difference of the common scale factor and band scale factor values. Adjustment is made to the respective scale factor (i.e., incrementally by one) for each of the sub-bands if the error for the sub-band is greater than a threshold value.